FINANCIAL PERFORMANCE EVALUATION OF INDIAN CONSTRUCTION FIRMS: AN EMPIRICAL ANALYSIS USING PROFITABILITY AND CAPITAL STRUCTURE INDICATORS

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ABSTRACT

This study evaluates the financial performance of selected Indian construction firms over the period 2013–14 to 2022–23, Using profitability ratios (ROA, ROE, NPM) and capital structure indicators (Debt-Equity Ratio, Interest Coverage Ratio), we assess firms' financial health. Regression analysis and correlation tests are employed to examine the relationship between profitability and leverage. Findings suggest that firms with optimal debt levels perform better, while excessive leverage negatively impacts profitability. The study provides insights for policymakers, investors, and managers to enhance financial decision-making in the construction sector.

KEYWORDS: Financial Performance, Profitability, Capital Structure, Construction

1. INTRODUCTION

The construction sector in India plays a vital role in the country's economic development, contributing significantly to GDP and employment. As one of the largest industries, it encompasses infrastructure, real estate, urban development, and industrial projects. Driven by rapid urbanization, government initiatives such as the Smart Cities Mission, Pradhan Mantri Awas Yojana (PMAY), and large-scale infrastructure programs like Bharatmala and Gati Shakti, the sector has witnessed consistent growth. Despite its potential, the industry faces numerous challenges, including delays, cost overruns, financing constraints, and regulatory hurdles.

In recent years, the sector has become increasingly capital-intensive, requiring efficient financial management and strategic investment decisions. Given its importance in national development and its heavy reliance on both public and private funding, the financial health of construction firms is critical for sustained growth and stability in the economy.

Financial Performance Analysis

Financial performance analysis is essential for understanding the operational efficiency, profitability, and sustainability of business enterprises. In capital-intensive sectors like construction, financial analysis helps stakeholders evaluate how effectively firms utilize their resources, manage debt, and generate returns. It provides a comprehensive picture of a company's strengths and weaknesses by examining key indicators such as profitability ratios, capital structure, liquidity, and solvency.

For construction firms, in particular, sound financial performance is crucial not only for long-term survival but also for securing funding, winning contracts, and maintaining stakeholder confidence. By analyzing financial performance over time, companies can identify trends, make informed strategic decisions, and optimize capital structure to enhance profitability and reduce financial risk. Moreover, such analysis assists investors, creditors, and policymakers in assessing the overall health and investment potential of firms in the sector.

2. REVIEW OF LITERATURE

Several studies have explored the relationship between capital structure and financial performance, highlighting diverse perspectives across industries. Gupta (2014) examined Indian construction companies and found a positive association between capital structure and financial indicators like return on assets and gross profit margin. Similarly, Shalini (2021), through a panel data analysis of construction firms listed in the S&P BSE 500, identified that firm-specific characteristics such as size and uniqueness significantly influenced leverage decisions. Hedau (2021) also contributed to the discussion by evaluating capital structure determinants in infrastructure firms using a hierarchical modeling approach, revealing the influence of both firm-level and macroeconomic variables on financing patterns.

Other sector-based studies further strengthen the understanding of this relationship. Ghayas and Akhter (2018), in their study on pharmaceutical companies in India, showed that short-term and total debt positively impacted return on equity, whereas long-term debt played a minor role. Joseph and Periyasami (2021) found a negative impact of high leverage on profitability in the cement sector, particularly on ROCE and ROA. A regional comparison by Tran et al. (2023) using data from Vietnam highlighted the influence of debt maturity and ownership structure on firm profitability, offering insights applicable to emerging markets like India. Furthermore, Kumar, Bapat, and Budhwar (2019) emphasized the dynamic nature of capital structure adjustments among Indian firms, underlining the importance of timely financial restructuring. Sinha and Agarwal (2021) also confirmed a statistically significant relationship between capital structure and profitability in listed Indian

companies, emphasizing that optimal leverage can enhance returns.

3. OBJECTIVES

1. To analyze the profitability of selected Indian construction firms using NPM,RONW, ROA and ROCE
2. To evaluate capital structure trends using Debt-Equity Ratio and Interest Coverage Ratio.
3. To examine the relationship between profitability and leverage.

4. RESEARCH METHODOLOGY

Sample and Period of Study

The research focuses on a sample of 10 leading Indian construction companies. These firms were selected based on availability and consistency of financial data for the period 2013–14 to 2022–23, offering a decade-long view of financial performance trends.

Sample Companies for the Study	
NBCC (India) Ltd.	Brigade Enterprises Ltd.
Dilip Buildcon Ltd.	Godrej Properties Ltd.
DLF Ltd.	Oberoi Realty Ltd.
Prestige Estates Projects Ltd.	Kolte-Patil Developers Ltd.
Sobha Ltd.	The Phoenix Mills Ltd.

Data Type and Sources

The research is based on secondary data, sourced from the annual reports of the selected companies and the CMIE Prowess database.

Tools and Indicators Used

The study applies ratio analysis, trend analysis, and statistical tools like descriptive statistics and regression analysis to evaluate financial performance.

Key indicators include	• Operating margin • Net profit margin • Return on net worth • Return on total assets • Return on capital employed • Debt to equity ratio • Interest coverage ratio

5. DATA ANALYSIS AND INTERPRETATION

Table 5.1: Total Income and Sales of Selected Companies

Company	Total Income		Sales	
	Mean	Median	Mean	Median
NBCC	5,819.41	5,873.84	5,575.04	5,618.19
DILIP	6,901.63	8,404.66	6,833.01	8,366.17
DLF	4,624.09	4,471.81	3,344.80	3,457.53
PRESTIGE	3,380.42	3,256.55	2,951.17	2,884.40
SOBHA	2,693.48	2,524.32	2,624.88	2,462.21
BRIGADE	1,695.94	1,666.53	1,549.48	1,550.60
GODREJ	1,454.29	1,229.09	956.25	782.73
OBEROI	1,037.81	1,012.01	930.08	932.47

KOLTE	505.16	525.35	459.29	484.37
PHOENIX	485.23	471.15	362.18	365.85

Inference

The analysis of the mean and median values of total income and sales across the selected companies reveals significant variations in their financial performance over the period. DILIP Buildcon leads in terms of both average total income and sales, with notably high median figures, indicating consistently strong performance. NBCC also shows a high average income and sales, although slightly lower than DILIP, reflecting its steady revenue generation.

DLF ranks third in average total income but shows a considerable gap between income and sales, possibly due to other income sources beyond core operations. Prestige and Sobha follow, with moderate income and sales figures, suggesting a mid-level market presence. Brigade displays a noticeable dip compared to the top five, positioning it among the lower mid-tier companies.

At the lower end of the spectrum, Godrej, Oberoi, Kolte Patil, and Phoenix have the lowest averages in both income and sales, indicating smaller operational scales or more limited market penetration. Interestingly, Godrej shows a larger gap between average income and sales, implying reliance on non-sales revenue. Overall, the mean and median values are closely aligned for most companies, suggesting stable performance patterns across the years.

Table: 5.2 Profitability Analysis
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Operating margin	100	-17.05	67.72	28.40	20.22
Net profit margin	100	-11.47	44.13	15.28	13.11
Return on net worth	100	-5.46	35.79	8.50	6.59
Return on total assets	100	-1.91	11.33	3.38	2.27
Return on capital employed	100	-3.44	22.24	5.62	4.62

The descriptive statistics for profitability indicators provide valuable insights into the financial performance of the selected companies. The **operating margin** shows a wide range, with a minimum of -17.05% and a maximum of 67.72%, and an average of 28.40%. This suggests that while some firms experienced operational inefficiencies, others were highly efficient in generating profits from core operations. The **net profit margin**, which averages 15.28%, also displays considerable variability (from -11.47% to 44.13%), indicating significant differences in cost control and revenue generation capabilities across companies.

The **return on net worth (RoNW)** has a mean of 8.50%, with

values ranging from -5.46% to 35.79%, reflecting moderate returns for shareholders, though some firms faced negative returns. The **return on total assets (RoTA)** is relatively lower, averaging 3.38%, suggesting that overall asset utilization was modest, with some inefficiencies. Lastly, the **return on capital employed (RoCE)** averages 5.62%, pointing to moderate effectiveness in using capital to generate profits. The relatively high standard deviations across these indicators underline the variability in profitability among the companies studied. Overall, the data reveals a mixed performance landscape, with a few firms demonstrating strong profitability while others struggled to maintain operational and financial efficiency.

Table: 5.3 Capital Structure Analysis
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Debt to equity ratio	100	0.00	2.56	0.64	0.53
Interest cover	100	0.00	42656.00	536.96	4376.56

Inference

The capital structure analysis indicates that most companies maintain a conservative financing approach, with an average debt-to-equity ratio of 0.64, suggesting a stronger reliance on equity over debt. However, the ratio ranges up to 2.56, highlighting higher financial risk for some firms. The interest coverage ratio shows extreme variability, with a very high average of 536.96 due to a few outliers, indicating that while some companies comfortably meet interest obligations, others may face challenges. Overall, the findings reflect mixed debt management practices and varying levels of financial stability across the firms.

Table: 5.4 Correlations Matrix

		Operating margin	Net profit margin	Return on net worth	Return on total assets	Return on capital employed	Debt to equity ratio	Interest cover
Operating margin	Pearson Correlation	1	.845**	-.117	.410**	-.077	-.245*	.173
	Sig. (2-tailed)		.000	.247	.000	.446	.014	.086
	N	100	100	100	100	100	100	100
Net profit margin	Pearson Correlation	.845**	1	-.029	.593**	.097	-.388**	.235*
	Sig. (2-tailed)	.000		.773	.000	.338	.000	.018
	N	100	100	100	100	100	100	100
Return on net worth	Pearson Correlation	-.117	-.029	1	.705**	.814**	.189	.043
	Sig. (2-tailed)	.247	.773		.000	.000	.060	.671
	N	100	100	100	100	100	100	100
Return on total assets	Pearson Correlation	.410**	.593**	.705**	1	.694**	-.182	.248*
	Sig. (2-tailed)	.000	.000	.000		.000	.069	.013
	N	100	100	100	100	100	100	100
Return on capital employed	Pearson Correlation	-.077	.097	.814**	.694**	1	-.295**	.133
	Sig. (2-tailed)	.446	.338	.000	.000		.003	.186
	N	100	100	100	100	100	100	100
Debt to equity ratio	Pearson Correlation	-.245*	-.388**	.189	-.182	-.295**	1	-.139
	Sig. (2-tailed)	.014	.000	.060	.069	.003		.166
	N	100	100	100	100	100	100	100
Interest cover	Pearson Correlation	.173	.235*	.043	.248*	.133	-.139	1
	Sig. (2-tailed)	.086	.018	.671	.013	.186	.166	
	N	100	100	100	100	100	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The correlation analysis reveals several significant relationships among the financial performance indicators. A strong positive correlation **(r = 0.845, p < 0.01)** exists between operating margin and net profit margin, indicating that improved operational efficiency is closely linked with higher profitability. Return on net worth is strongly associated with return on total assets **(r = 0.705, p < 0.01)** and return on capital employed **(r = 0.814, p < 0.01)**, suggesting that companies efficiently utilizing their assets and capital also tend to deliver better returns to shareholders. A moderate positive correlation is also observed between return on total assets and net profit margin **(r = 0.593, p < 0.01)**, underlining the impact of asset efficiency on net income.

Conversely, the debt-to-equity ratio shows a significant negative correlation with net profit margin **(r = -0.388, p < 0.01)** and return on capital employed **(r = -0.295, p < 0.01)**, implying that higher financial leverage may reduce profitability and capital efficiency. Additionally, interest cover shows a mild positive correlation with return on total assets **(r = 0.248, p < 0.05)** and net profit margin **(r = 0.235, p < 0.05)**, indicating that companies with better profitability are more capable of meeting their interest obligations. Overall, the findings highlight the critical role of operational efficiency, capital utilization, and financial leverage in shaping a firm's financial performance.

Table: 5.5 Regression Analysis

ROA=β0+β1(D/E) + β2(ICR)+Є

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Interest cover, Debt to equity ratio[b]		Enter

a. Dependent Variable: Return on total assets
b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.290a	.084	.065	2.19059

a. Predictors: (Constant), Interest cover, Debt to equity ratio

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42.627	2	21.314	4.442	.014b
	Residual	465.472	97	4.799		
	Total	508.099	99			

a. Dependent Variable: Return on total assets
b. Predictors: (Constant), Interest cover, Debt to equity ratio

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.724	.348		10.692	.000
	Debt to equity ratio	-.640	.417	-.151	-1.536	.128
	Interest cover	.000	.000	.227	2.315	.023

a. Dependent Variable: Return on total assets

The regression analysis explores the impact of debt to equity ratio and interest cover on return on total assets (ROA). The model shows a weak but statistically significant relationship **(R^2 = 0.084, p = 0.014)**, indicating that approximately 8.4% of the variation in ROA can be explained by these two independent variables. The overall model is significant **(F = 4.442, p < 0.05)**, suggesting a reliable predictive power, albeit limited.

Looking at the coefficients, interest cover has a small but statistically significant positive effect on ROA **(β = 0.000, p = 0.023)**, implying that companies with better interest coverage tend to achieve higher returns on their assets. Conversely, the debt to equity ratio shows a negative relationship with ROA **(β = -0.640)**, but this effect is not statistically significant **(p = 0.128)**. This indicates that while higher financial leverage may slightly reduce asset returns, the effect is not strong enough to draw a firm conclusion in this case. Overall, the results highlight the importance of efficient debt servicing in enhancing asset profitability.

6. CONCLUSION AND SUGGESTIONS

The analysis of the selected companies reveals notable differences in total income and sales across firms, with DILIP and NBCC reporting the highest mean values, indicating their stronger revenue-generating capabilities in comparison to others. The descriptive statistics for profitability show a wide variation among companies, with average operating margins and net profit margins being 28.40% and 15.28%, respectively. Return-based metrics such as return on net worth (8.50%), return on total assets (3.38%), and return on capital employed (5.62%) indicate moderate performance levels within the industry.

The correlation analysis highlights a strong positive association between operating margin and net profit margin, and between return on net worth and other return indicators like ROA and ROCE. Interestingly, a negative correlation exists between debt-to-equity ratio and both profitability and capital efficiency indicators, implying that increased leverage may adversely impact performance. The regression analysis further confirms that while the debt-to-equity ratio has a negative but statistically insignificant impact on return on total assets (ROA), interest coverage ratio has a positive and significant influence, suggesting that higher interest coverage enhances asset efficiency.

Investors should pay close attention to companies with strong interest coverage and lower debt-to-equity ratios, as these firms are likely to offer more sustainable returns. Profitability indicators, particularly return on assets and net margins, can serve as reliable metrics for investment decisions.

Policymakers may consider promoting fiscal prudence and incentivizing firms to improve financial health by reducing excessive reliance on debt. Encouraging transparent financial reporting and benchmarking profitability can further enhance investor confidence.

Company Managers should focus on optimizing operational efficiency and improving interest coverage to boost returns on assets. Strategic decisions related to capital structure need to weigh the potential risks of high leverage against the expected gains.

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